AMENDMENTS TO THE SPECIFICATION

Please amend the specification as shown below. The following paragraphs are numbered according to the .PDF version of the Specification that is viewable in private pair.

Please replace paragraph [0005] with:

-- Determining properties of a subsurface earth formation is a critical element in maximizing the profitability of oil and gas exploration and production. In order to improve oil, gas, and water exploration, drilling, and production operations, it is necessary to gather as much information as possible on the properties of the underground earth formations as well as the environment in which drilling takes place. Thus, well logging typically produces a large amount of information that needs to be analyzed to provide insights into the formation properties. The data to be analyzed are typically derived from logging operations using different instruments to probe various geophysical properties. Each of these instruments may generate an enormous amount of data, rendering analysis difficult. In addition, it is often necessary to compare and contrast data from different measurements to gain insights into the formation properties. Accordingly, a method that facilitate such comparison is desirable.--

Please replace paragraph [0007] with:

-- FIG. 1 shows a typical prior art method for presenting [[a]] a plurality of logging data side-by-side tracks for analysis. The presentation shown in FIG. 1 is a standard format prescribed in, for example, *Standard Practice 31A*, published by the American Petroleum Institute, Washington, D. C. In this example, tracks 50, 54, 56 each include a header 57 which indicates the data types corresponding to curves 51, 53, 55, 59 presented in each track. Well log data are typically recorded with reference to the depth of the well. A depth ruler 52, which shows the measured depth (MD, the depth from the top of the well) of the data, is typically included in the graph as shown in FIG. 1 to provide a representation of the well.--

Please replace paragraph [0022] with:

-- FIG. 8 shows a display[[.]] illustrating ~~Illustrating~~ a view from inside a borehole according to one embodiment of the invention.--

Please replace paragraph [0029] with:

-- Embodiments of the invention may be implemented on any type of computer[[s]]. For example, as shown in FIG. 2, a typical computer 200 includes a processor 202, associated memory 204, input means such as a keyboard 206 and a mouse 208, and an output device such as a display 210. In addition, computer 200 may include other peripherals and functionalities (not shown).--

Please replace paragraph [0031] with:

--A borehole trajectory presents special problems in 3D visualization because a borehole may be several miles long and yet its diameter is no larger than a foot. For example, it is difficult using a typical 3D visualization software package to keep the trajectory within a view area during the zooming in and out operations or other navigation around the 3D scene, which are frequently required to visualize the entire borehole and to inspect detailed information in a particular area. One approach to address this problem is disclosed in U.S. Published Application US-2003-0043170-A1 published March 6, 2003 by Fleury. This application is assigned to the assignee of the present invention and is hereby incorporated by reference in its entirety. The methods disclosed in the Fleury application use a reference shape to represent a 3D trajectory and to restrict the POI to travel along the reference shape. A reference shape, for example, may be a wire lying along the longitudinal axis of the borehole. Other reference shape may include a curvilinear object ("thin wire") lying slightly offset from the longitudinal axis, located on the wall of the well, or located some where outside, but near, the well. Furthermore, a reference shape may not necessarily be a "thin wire." For example, a 3D reference shape may be a cylinder (*i.e.*, a "thick wire") or a cylindrical surface (*i.e.*, a pipe or tube) that follows the shape of the well trajectory. The radius of such a cylinder or a cylindrical surface may be smaller than, similar to, or slightly greater than that of the well trajectory.--

Please replace paragraph [0039] with:

-- While FIG. 3 illustrates a display having two layers (i.e., a data layer and a 3D object surface layer), one of ordinary skill in the art would appreciate that the exact number of layers should not limit the present invention. For example, more layers of measurement data may be displayed over the 3D object. The different layers may be used to display measurements of different formation properties, measurements at different depth of investigation (DOI, different distance into the formation from the borehole wall), or measurements at different time (time lapse measurements). Each of the layers may be represented on a surface having the same or different radius, i.e., these layers may or may not overlap. In addition, a user may be permitted to turn the display of any particular layer on or off to further facilitate the viewing of the desired layers.--

Please replace paragraph [0050] with:

-- In addition to having a grid 302 displayed next to the 3D object, as shown in FIG. 5, a grid or ruler may also be mapped onto the surface of the 3D object. For example, FIG. 6, displaying borehole surface 900, shows a ruler 322 mapped onto the borehole 302 to provide the MD information. Placing the reference grid or ruler on the 3D object is preferred when the display is "zoomed" in on the 3D object. In FIG. 6, a user-selected depth 310 (or POI) is also displayed. --

Please replace paragraph [0056] with:

-- Also shown in FIG. 9 is a dip plane compass 502 located at a corner of the dip plane 504. The dip plane compass 502 provides information related to the dip plane 504. FIG. 10 shows [[One]] one embodiment of a dip plane compass 502 including a strike pattern 510 (|-) that indicates the azimuth of the intersection of the dip plane 504 with a horizontal surface. In addition, the dip plane compass 502 also includes a directional indicator (e.g., north) 512. A user will be able to derive the dip angle and the orientation of the dip plane from the strike pattern 510 and the directional indicator 512.--

Please replace paragraph [0058] with:

--Some embodiments of the invention relate to methods for displaying multi-layer information on a 3D object in a more comprehensible manner. For example, information and/or measurement data may be better visualized if a portion of the 3D object is removed (cut out). FIG. 11 shows that an angular section of a borehole 1100 and the associated multi-layer displays is cut out. As shown, the inside 301 of the borehole becomes visible, in addition to the first layer 304 and the second layer 306. This view is particular useful if a user needs to compare the information on various layers and/or to compare these layers with the properties shown on the inside 301 of the borehole. In one embodiment, the angular section to be removed may be referenced to the user coordinate such that a different angular section will be removed when the 3D object is rotated, for example. One of ordinary skill in the art would appreciate that other variations of this method are possible without departing from the scope of the invention. For example, the angular size or orientation (relative to the borehole axis) of this cutout section may be controllable by a user, or different layers may have different angular sections cutout.--

Please replace paragraph [0060] with:

-- FIG. 12A displays a cross-section view that includes a first layer borehole (caliper) surface 708 and a second layer 710 representing measurement data. The cross-section view may be implemented as a top-down image of the borehole section which includes navigational and scaling labels and information. As shown in [[FGI.]] FIG. 12A, these labels and information include a POI 700, including the corresponding measurement depth, a North-South intersection line 704, a top-of-hole (TOH) intersection line 804 (as shown in FIG. 7), and a scale 709. The scale 709 is chosen dynamically such that the most outlying layer is included in the viewable area. In addition, an icon (e.g., the eye icon) 714 may be included to indicate the angle between the TOH line 804 and the NS line 704.--

Please replace paragraph [0064] with:

-- The displayed measurement data may be encoded by different color schemes, gray scale, or different textual information. Also, any label or textual information may be displayed with different fonts, font colors, background colors, and font sizes to differentiate one type of measurement from another type of measurements (*e.g.*, computer generated versus user-controlled, and depth versus width). The measurements displayed may be selectively turned on or off, or a graphical attribute (e.g., transparency) of the display may be changed. Furthermore, <u>an</u> additional measurement display layer may be added or <u>an</u> existing displayed layer may be removed from the currently displayed scene. In some embodiments, an angular section may be cutout to facilitate analysis involving many displayed layers.--